

ONE-DROP FILL SPACERLESS PROCESS FOR
LIQUID CRYSTAL ON SILICON OR MICRODISPLAYS

ABSTRACT OF THE DISCLOSURE

A method and an arrangement for the spacerless dispensing of precise amounts of liquid crystals into cells to form active liquid crystal display areas on silicon backplane or microdisplays. There is implemented a unique spacerless manufacture of miniature liquid crystal displays (LCD's), particularly at the wafer level in that, subsequent to imparting the active elements and mirrors on a silicon wafer, there is formed a completely enclosed spacer wall, preferably by photolithographic applications, along a peripheral wall region extending externally of the active display area and leaving a narrow space for a sealant externally of the spacer wall. Thereafter, an alignment layer is applied to the wafer, and a covering glass, which is of similar size and configuration, is provided in order to cover the entire active area of the wafer. Thereafter, the sealant is dispensed in the sealant region outside of the spacer wall extending about the liquid crystal areas, which may contain discrete spacer balls or posts, and thereafter lamination implemented under a vacuum, and the sealant is cured.